BUSHFIRE THREAT ASSESSMENT

FOR
PROPOSED
1ST FLOOR EXTENSION ON EXISTING BUILDING (WCEOLP)
AT

TAMWORTH HOSPITAL

31 DEAN STREET, NORTH TAMWORTH NSW 2340

Prepared by:

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Executive Summary

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of Health Infrastructure (HI) for proposed 1st floor extension on existing building at Tamworth Hospital. The existing building's purpose is for World Class End of Life Program (WCEoLP). The report forms part of the supporting documentation for approval without consent under Clause 2.16 and 2.61 of the State Environmental Planning Policy (SEPP Transport and Infrastructure) 2021.

The proposal involves addition to an existing building as part of Tamworth Hospital. The location of proposed works is not mapped or within 140m of Bushfire Prone Land therefore does not require to be referred to the NSW RFS and does not require a Bush Fire Safety Authority (BFSA) under the RF Act s100B. Under Clause 2.16 and 2.61 of the State Environmental Planning Policy (Transport and Infrastructure) a Bushfire Threat Assessment is not required however this report assesses the proposal as best practice and consideration of the document Planning for Bushfire Protection 2019. The clause is not strictly applied due to the proposed works not occurring on Bushfire Prone Land.

Bushfire Protection Measures (BPMs) have been addressed in accordance with Chapter 6 of Planning for Bushfire Protection 2019 (PBP 2019). An exclusion is sought from PBP Addendum November 2022 and Specification 43 of Volume One of the NCC 2022 is sought in this case due insufficient bushfire risk.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards to facilitate an acceptable level of bushfire protection.

In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements for the proposed development:

1. Asset Protection Zones (APZ)

The subject site identifies containing mapped 'bushfire prone land', however, the area of proposed works is not mapped on bushfire prone land nor within 140m of an area mapped as bushfire prone land. Managed lands of 140m are already established via the existing Tamworth Hospital site and will continue to be maintained in perpetuity in relation to the proposal and existing infrastructure. No requirement for APZs.

2. Bushfire Attack Level (BAL)

The BAL relates to a set of construction specifications listed within Australian Standard AS 3959-2018 Constructions of buildings in bushfire-prone areas (AS 3959) and the NSW variation to AS 3959 listed at Section 7.5.2 of PBP.

The BAL for the proposed floor extension has been determined as **BAL-LOW** in accordance with PBP Table A1.12.1 as there is insufficient risk to warrant specific construction requirements. The building is located greater than 140m away from any hazard(s) and therefore has insufficient bushfire threat in accordance with AS 3959-2018. No requirement for construction.

3. Access

PBP 2019 requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. All bushfire prone areas should have an alternate access or egress option depending on the bushfire risk, the density of the development, and the chances of the road being cut by fire for a prolonged period.

Though the proposal is not located on bushfire prone land, it is found that the surrounding public roads provide satisfactory access for evacuation and emergency response. Dean Street provides adequate access to the site. The public roads have been designed to comply with the PBP Acceptable Solutions for public access.

Access to the proposed building extension for fire protection purposes will be gained directly from Dean Street on the Western side of the site. Internal access roads are not proposed, as they are existing which extend into the site for further access. Fire appliances will operate from adjoining internal road. No requirement for access.

4. Water Supply and utilities

The development was designed and approved to be compliant with PBP and Australian Standard AS 2419.1 Fire hydrant installations - System design, installation and commissioning. The subject lots are serviced by a reticulated water supply and it is assumed that a hydrant system complying with AS2419 will be provided to the proposed development. No requirement for water supply.

5. Electricity Supply

Specific provisions regarding the installation of electricity are not required due to the significant hazard separation distance available and electricity services are existing for the Tamworth Hospital. No requirement for electricity supply.

6. Emergency Management and evacuation

PBP and the RFS typically require the preparation of a 'Bushfire Emergency Management and Evacuation Plan' prior to occupation of new SFPP development on bushfire prone land. The proposal is not mapped on bushfire prone land however a plan can be prepared / updated to include the provision of the extension to the World Class End of Life Program (WCEoLP) building.

Conclusion

A Bushfire Threat Assessment is not required under Clause 2.61 and 2.16 of the SEPP (Transport and Infrastructure) however this report has been prepared in best practice. An exemption from PBP Addendum November 2022 and Specification 43 of Volume One of the NCC 2022 is sought in this case due to the **BAL-LOW** rating. A Bush Fire Safety Authority is not required for the proposed works as they are not mapped on bushfire prone land. There is insufficient risk to warrant any specific construction requirements in accordance with AS3959-2018.

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

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Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419-2017	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BFPL Map	Bush Fire Prone Land Map
BPMs	Bush Fire Protection Measures
BFSA	Bush Fire Safety Authority
CC	Construction Certificate
DA	Development Application
EPA Act	*NSW Environmental Planning and Assessment Act 1979*
FFDI	Forest Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
HI	Health Infrastructure
IPA	Inner Protection Area
LGA	Local Government Area
NCC	National Construction Code
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2019
PoM	Plan of Management
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation
SEPP	State Environmental Planning Policy (Transport and Infrastructure)
TRC	Tamworth Regional Council
WCEoLP	World Class End of Life Program

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TABLES

FIGURES

1 INTRODUCTION

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of Health Infrastructure (HI) for proposed 1st floor extension on existing building at Tamworth Hospital, 31 Dean Street North Tamworth NSW 2340 hereafter referred to as the "site" (refer to Figure 1-1 for site locality). Refer to Appendix A for proposed site plans.

This BTA is suitable for submission of approval without consent under Clause 2.16 and 2.61 of the State Environmental Planning Policy (SEPP Transport and Infrastructure) 2021 and provides information on measures that will enable the development to comply with 'Planning for Bushfire Protection' (NSW RFS, 2019), hereafter referred to as PBP (RFS, 2019) as best practice.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Planning for Bushfire Protection 2019 document.

1.1 Site Particulars

Locality:	Tamworth Hospital 31 Dean Street, North Tamworth NSW 2340
LGA:	Tamworth Regional Council
Current Land Use:	Zoned predominantly as R1 General Residential with areas to the North zoned as RU4 Primary Production Small Lots
Forest Danger Index:	80 FFDI

Legend

Building Outline

Subject Land

Assessment Area

100m

140m

Cadastre

Scale 1:1,300

0 40 80 m

firebird

Client: Health Infrastructure

Project: Dean Street, Tamworth NSW 2340

Figure 1-1: Site Location

1.2 Description of the Proposal

This proposal seeks approval without consent under Clause 2.16 and 2.61 of the State Environmental Planning Policy (SEPP Transport and Infrastructure) 2021 for a 1st floor extension to existing building (WCEoLP) however this is not strictly applied due to not being mapped on Bushfire Prone Land. Refer to Appendix A for proposed plans.

1.3 Legislative Requirements

Part of the subject site is affected by Bushfire Prone Land however the proposed works are not mapped as Bush Fire Prone Land (BFPL) by TRC (refer to Figure 1-2).

This report has been prepared in best practice to support approval without consent under Clause 2.61 *Consideration of Planning for Bushfire Protection* and 2.61 *Development without consent – existing health services facilities*, of the State Environmental Planning Policy (SEPP Transport and Infrastructure) 2021.

This BTA has been prepared using current legislative requirements and associated guidelines for assessment of bushfire protection, these being:

- PBP (RFS, 2019); and
- AS3959-2018 Construction of Buildings in Bushfire Prone Area.

1.4 Objectives of Assessment

This report has been prepared to address the requirements of Planning for Bushfire Protection 2019 in best practice. This BTA also addresses the six key Bush Fire Protection Measures (BFRMs) in a development assessment context where relevant being:

- The provision of clear separation of buildings and bush fire hazards, in the form of fuel-reduced APZ (and their components being Inner Protection Areas (IPA's) and Outer Protection Areas (OPA's);
- Sitting and design of the proposal;
- Construction standards;
- Appropriate access standards for residents, fire-fighters, emergency workers and those involved in evacuation;
- Adequate water supply and pressure, and utility services; and
- Suitable landscaping, to limit fire spreading to a building.

Legend

- Building Outline
- Subject Land

Assessment Area

- 100m
- 140m
- Cadastre

Bushfire Prone Land

- Vegetation Category 3
- Vegetation Buffer

Scale 1: 2,000

0 20 40 60 Metres

firebird

Client: Health Infrastructure

Project: Dean Street, Tamworth NSW 2340

Figure 1-2: Bushfire Prone Land

2 METHODOLOGY

2.1 Vegetation Assessment

Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent
- Confirmation of the vegetation assemblage typology present.

2.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 2m.

3 SITE ASSESSMENT

The following assessment has been undertaken in accordance with the requirements of PBP (RFS, 2019).

3.1 Vegetation & Slope Assessment

In accordance with PBP (RFS 2019), an assessment of the vegetation over a distance of 140m in all directions from the site was undertaken. Vegetation that may be considered a bushfire hazard was identified in all directions from the site. This assessment is depicted in Table 3-1 and Figure 3-1 that shows vegetation post development.

In accordance with PBP (RFS 2019), an assessment of the slope that the vegetation considered a bushfire hazard was undertaken and the results are presented in Table 3.1 below.

Table 3-1: Vegetation Classification

Proposed 1st Floor Extension to Existing Building		
Direction	**Vegetation Type**	**Slope**
North	Managed Land – Existing related infrastructure Tamworth Hospital	N/A
East	Managed Land – Existing related infrastructure Tamworth Hospital	N/A
South	Managed Land – Existing related infrastructure Tamworth Hospital	N/A
West	Managed Land – Existing related infrastructure Tamworth Hospital	N/A

Legend

- Building Outline
- Subject Land

Assessment Area

- 100m
- 140m
- Elevation Contours
- Cadastre

Scale 1: 2,000

0 20 40 60 Metres

firebird

Client: Health Infrastructure

Project: Dean Street, Tamworth NSW 2340

Figure 3-1: Vegetation/Slope Map

4 BUSHFIRE PROTECTION MEASURES

PBP 2019 requires the assessment of a suite of bushfire protection measures (BPM) that in total provide an adequate level of protection for SFPP development. Though the proposal is not affected by bushfire due to insufficient risk and not being mapped, the measures addressed are listed in Table 4-1 below.

Table 4-1: PBP BPM

Bushfire Protection Measures	Requirements
Asset Protection Zones (APZ)	APZs to be installed in accordance with the Acceptable or Performance based assessment of PBP 2019
Construction standards (BALs)	Compliance with the Acceptable or Performance based assessment of PBP 2019
Access	Compliance with the Acceptable or Performance based assessment of PBP 2019
Water supply and other utilities	Compliance with the Acceptable or Performance based assessment of PBP 2019
Emergency and evacuation management	Preparation of 'Bushfire Emergency Management & Evacuation Plan'.

4.1 Asset Protection Zones

Using the vegetation and slope information presented in Section 3-1 and mapped on Figure 3-1, it has been determined that managed land for >140m is already established as an APZ and will continue to be maintained in perpetuity.

Table 4-2: Determination of Required APZs

Vegetation Type & Direction	APZ Provided (as per Table A1.12.1)	Bushfire Attack Level (BAL)
Managed Land to the North	>140m	BAL-LOW
Managed Land to the East	>140m	BAL-LOW
Managed Land to the South	>140m	BAL-LOW
Managed Land to the West	>140m	BAL-LOW

Given the information in Table 4-2 and shown in Figure 3-1, the proposed development is not required to have specific APZs implemented to the insufficient bushfire risk.

5 BUSHFIRE ATTACK ASSESSMENT

Building design and the materials used for construction of future dwellings should be chosen based on the information contained within AS3959-2018, and accordingly the designer / architect should be made aware of this recommendation. It may be necessary to have dwelling plans checked by the architect involved to ensure that the proposed dwellings meet the relevant Bushfire Attack Level (BAL) as detailed in AS3959-2018.

The determinations of the appropriate BAL are based upon parameters such as weather modelling, fire-line intensity, flame length calculations, as well as vegetation and fuel load analysis. The determination of the construction level is derived by assessing the:

- Relevant FFDI = 80
- Flame temperature
- Slope
- Vegetation classification; and
- Building location.

The following BAL, based on heat flux exposure thresholds, are used in the standard:

(a) **BAL – LOW** The risk is considered to be **VERY LOW**
There is insufficient risk to warrant any specific construction requirements but there are still some risks.

(b) **BAL – 12.5** The risk is considered to be **LOW**
There is a risk of ember attack.
The construction elements are expected to be exposed to a heat flux not greater than 12.5 k/m2.

(c) **BAL – 19** The risk is considered to be **MODERATE**
There is a risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat.
The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m2.

(d) **BAL-29** The risk is considered to be **HIGH**
There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.
The construction elements are expected to be exposed to a heat flux no greater than 29 kW/m2.

(e) **BAL-40** The risk is considered to be **VERY HIGH**
There is much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux no greater than 40 kW/m^2.

(f) **BAL-FZ** The risk is considered to be **EXTREME**
There is an extremely high risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.
The construction elements are expected to be exposed to a heat flux greater than 40 kW/m^2.

5.1 Determination of Bushfire Attack Levels

Using a FFDI of 80, the information relating to vegetation, slope and according to Table A1.12.1 of PBP 2019 that determined the appropriate BAL. The results from this bush fire risk assessment are detailed below in Table 5-1–Bush Fire Attack Assessment and Figure 3-1 shows the vegetation.

Table 5-1: Determination of BALs for the Proposed Development

Vegetation Type & Direction	APZ Provided (as per Table A1.12.1)	Bushfire Attack Level (BAL)
Managed Land to the North	>140m	BAL-LOW
Managed Land to the East	>140m	BAL-LOW
Managed Land to the South	>140m	BAL-LOW
Managed Land to the West	>140m	BAL-LOW

The BAL for the proposed development has been determined as BAL-LOW in accordance with PBP Table A1.12.1 as there is insufficient risk to warrant specific construction requirements. No construction requirements are necessary to be imposed in relation to bushfire risk.

5.2 Access

PBP 2019 requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. All bushfire prone areas should have an alternate access or egress option depending on the bushfire risk, the density of the development, and the chances of the road being cut by fire for a prolonged period.

Though the proposal is not located on bushfire prone land, it is found that the surrounding public roads provide satisfactory access for evacuation and emergency response. Dean Street provides adequate access to the site. The public roads have been designed to comply with the PBP Acceptable Solutions for public access.

Access to the proposed building extension for fire protection purposes will be gained directly from Dean Street on the Western side of the site. Internal access roads are not proposed, as they are existing which extend into the site for further access. Fire appliances will operate from adjoining internal road. No requirement for access.

6 COMPLIANCE

The proposal is for a 1st floor extension to existing building within Tamworth Hospital. Table 6-1 details the compliance with Development Standards for Special Fire Protection Purpose Developments as a guideline for best practice.

Table 6-1: Proposed Development Compliance with Special Fire Protection Purpose Development Standards

Acceptable Solutions	Performance Criteria	Compliance
ASSET PROTECTION ZONES		
〉 the building is provided with an APZ in accordance with PBP 2019 (Table A1.12.1 in Appendix 1).	〉 radiant heat levels of greater than 10kW/m² (calculated at 1200K) will not be experienced on any part of the building.	**Complies with Acceptable Solution –** The development is not within 140m of a bushfire hazard nor mapped on bushfire prone land and specific APZs are not required to be imposed.
〉 APZs are located on lands with a slope less than 18 degrees.	〉 APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	**Complies with Acceptable Solution –** The development is not within 140m of a bushfire hazard nor mapped on bushfire prone land and specific APZs are not required to be imposed.
〉 the APZ is managed in accordance with the requirements of Appendix 4 of this document, and is wholly within the boundaries of the development site; 〉 APZ are wholly within the boundaries of the development site; and 〉 other structures located within the APZ need to be located further than 6m from the refuge building.	〉 APZs are managed and maintained to prevent the spread of fire to the building. 〉 the APZ is provided in perpetuity	**Complies with Acceptable Solution –** The development is not within 140m of a bushfire hazard nor mapped on bushfire prone land and specific APZs are not required to be imposed.

LANDSCAPING		
〉 landscaping is in accordance with Appendix 4; and 〉 fencing is constructed in accordance with section 7.6.	〉 landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions	**Complies with Acceptable Solution –** the Landscaping requirements for bushfire protection do not apply due to the significant hazard separation distance available. The development is not within a mapped bushfire prone area of 140m nor mapped itself.
CONSTRUCTION STANDARDS – PBP 2019		
〉 a construction level of BAL-12.5 under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	〉 the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	**Complies with Acceptable Solution –** The BAL for the proposed development has been determined as BAL-LOW in accordance with PBP Table A1.12.1 as there is insufficient risk to warrant specific construction requirements.
CONSTRUCTION STANDARDS – PBP Addendum 2022		
〉 a construction level of BAL-19 or greater under AS3959 and section 7.5 of PBP is applied.	〉 the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	**N/A –** The building is existing and is not within 140m of a mapped bushfire hazard therefore it is requested that an exemption from PBP Addendum November 2022 and Specification 43 of Volume One of the NCC 2022 is sought in this case due to the **BAL-LOW** rating and insufficient bushfire risk.
ACCESS – PBP 2019		
〉 SFPP access roads are two-wheel drive, all-weather roads; 〉 access is provided to all structures; 〉 traffic management devices are constructed to not prohibit access by emergency services vehicles;	〉 firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	**Complies with Acceptable Solution –** Internal access roads are not proposed; however, the existing public road and internal access roads provide direct access in compliance with the requirements of the acceptable solution.

〉 access roads must provide suitable turning areas in accordance with Appendix 3; and 〉 one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.		
ACCESS – PBP Addendum 2022		
〉 Vehicular access must be capable of providing continuous access for emergency vehicles to enable travel in a forward direction from a public road around the entire building; and 〉 Must have a minimum unobstructed width of 6m with no part of its furthest boundary more than 18m from the building and in no part of the 6m width be built upon or used for any purpose other than vehicular or pedestrian movement; and 〉 Must provide reasonable pedestrian access to the building; and 〉 Must have a load bearing capacity and unobstructed height to permit the operation and passage of firefighting vehicles; and 〉 Must be wholly within the allotment except that a public road complying with the above may serve as the vehicular access or part thereof.	〉 Firefighting vehicles are provided with safe, all-weather access to structures and hazardous vegetation.	**N/A –** The building is existing and is not within 140m of a mapped bushfire hazard therefore it is requested that an exemption from PBP Addendum November 2022 and Specification 43 of Volume One of the NCC 2022 is sought in this case due to the **BAL-LOW** rating and insufficient bushfire risk.

PERIMETER ROADS		
〉 there are two-way sealed roads; 〉 minimum 8m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are to be located clear of parking areas; 〉 there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the maximum grade road is 15 degrees and average grade of not more than 10 degrees; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	〉 perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	**N/A** - Public roads are already approved and compliant with the requirements of the acceptable solution; a perimeter road is not required as no vegetation hazard occurs within 140m of the proposed development and the proposed works are not mapped on bushfire prone land.

NON-PERIMETER ROADS		
〉 minimum 5.5m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are located clear of parking areas; 〉 there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the maximum grade road is 15 degrees and average grade of not more than 10 degrees; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	〉 non-perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating.	**N/A -** Public roads are already approved and compliant with the requirements of the acceptable solution.
WATER SUPPLY – PBP 2019		
〉 reticulated water is to be provided to the development, where available; or 〉 a 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.	〉 an adequate water supply for firefighting purposes is installed and maintained.	**Complies with Acceptable Solution –** The development was designed and approved to be compliant with PBP and Australian Standard AS 2419.1 Fire hydrant installations - System design, installation and commissioning. The subject lots are serviced by a reticulated water supply and it is assumed that a hydrant system complying with AS2419 will be provided for the proposed development.

〉 fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2017; 〉 hydrants are not located within any road carriageway; and 〉 reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	〉 water supplies are located at regular intervals; and 〉 the water supply is accessible and reliable for firefighting operations.	**Complies with Acceptable Solution** – The development was designed and approved to be compliant with PBP and Australian Standard AS 2419.1 Fire hydrant installations - System design, installation and commissioning. The subject lots are serviced by a reticulated water supply and it is assumed that a hydrant system complying with AS2419 will be provided for the proposed development.
〉 fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2017.	flows and pressure are appropriate.	**Complies with Acceptable Solution –** Flow and pressure assumed compliant
〉 all above-ground water service pipes external to the building are metal, including and up to any taps.	the integrity of the water supply is maintained.	**Complies with Acceptable Solution –** All above ground pipes will comply with requirements
〉 where no reticulated water supply is available, water for firefighting purposes is provided in accordance with Table 5.3d.	a static water supply is provided for firefighting purposes in areas where reticulated water is not available.	**Complies with Acceptable Solution** - The development was designed and approved to be compliant with PBP and Australian Standard AS 2419.1 Fire hydrant installations - System design, installation and commissioning. The subject lots are serviced by a reticulated water supply and it is assumed that a hydrant system complying with AS2419 will be provided for the proposed development.

WATER SUPPLY – PBP Addendum 2022		
〉 Reticulated water is to be provided to the development, where available; and 〉 Water for firefighting purposes must be made available and consist of – ○ A fire hydrant system installed in accordance with AS2419.1; or ○ Where no reticulated water is available, a static water supply consisting of tanks, swimming pools, dams or the like, or a combination of the these, together with suitable pumps, hoses and fittings, determined in consultation with NSW RFS that – ▪ Is capable of providing a required flow rate for a period of not less than 4 hours or ▪ Has a volume of 10,000 litres for each occupied building.	〉 An adequate water supply for firefighting purposes is installed and maintained.	**Complies with Acceptable Solution** - The development was designed and approved to be compliant with PBP and Australian Standard AS 2419.1 Fire hydrant installations - System design, installation and commissioning. The subject lots are serviced by a reticulated water supply and it is assumed that a hydrant system complying with AS2419 will be provided for the proposed development.
ELECTRICTY SERVICES		
〉 where practicable, electrical transmission lines are underground; 〉 where overhead, electrical transmission lines are proposed as follow: ○ lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and	〉 location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	**N/A** - Specific provisions regarding the installation of electricity are not required due to the significant hazard separation distance available and electricity services are existing.

○ no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.		
GAS SERVICES		
〉 reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used; 〉 all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; 〉 connections to and from gas cylinders are metal; 〉 if gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion; 〉 polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and 〉 above-ground gas service pipes external to the building are metal, including and up to any outlets.	〉 location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	**N/A -** Specific provisions regarding the gas services are not required due to the significant hazard separation distance available and gas services are existing.
EMERGENCY MANAGEMENT		
〉 Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the: ○ The NSW RFS document: A Guide to Developing a Bush Fire	〉 a Bush Fire Emergency Management and Evacuation Plan is prepared.	**Complies with Acceptable Solution –** An emergency evacuation plan may be prepared / updated to include the 1st floor extension to existing building (WCEoLP) however is not required as the proposed works

Emergency Management and Evacuation Plan; ○ NSW RFS Schools Program Guide; ○ Australian Standard AS 3745:2010 Planning for emergencies in facilities; and ○ Australian Standard AS 4083:2010 Planning for emergencies – Health care facilities (where applicable). ○ the Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants Note: A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.		and existing building are not mapped on bushfire prone land.

7 CONCLUSION & RECOMMENDATIONS

In summary, a Bushfire Risk Assessment (BTA) has been undertaken by Firebird ecoSultants Pty Ltd for a proposed 1st floor extension on existing building at Tamworth Hospital, 31 Dean Street North Tamworth NSW 2340. The report forms part of the supporting documentation for approval without consent under Clause 2.16 and 2.61 of the State Environmental Planning Policy (SEPP Transport and Infrastructure) 2021, though this is not strictly applied due to the proposed works not being located on bushfire prone land.

The Bushfire Threat Assessment is not required to be undertaken through the related planning pathway under Clause 2.61 and 2.16 of the SEPP (Transport and Infrastructure), however the proposed works has further considered potential bushfire threat, management and mitigation as best practice using Planning for Bushfire Protection 2019.

The subject site identifies containing mapped 'bushfire prone land', however, the area of proposed works is not mapped on bushfire prone land nor within 140m of an area mapped as bushfire prone land. Managed lands of 140m are already established via the existing Tamworth Hospital site and will continue to be maintained in perpetuity in relation to the proposal and existing infrastructure. As such, there is no requirement to comply with the bushfire protection measures listed within PBP 2019.

The BAL for the proposed floor extension to existing building at Tamworth Hospital has been determined as **BAL-LOW** in accordance with PBP Table A1.12.1 as there is insufficient risk to warrant specific construction requirements.

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APPENDIX A PROPOSED SITE PLANS

APPENDIX B ASSET PROTECTION ZONES

APPENDIX 4

ASSET PROTECTION ZONE REQUIREMENTS

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps to reduce vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

Careful attention should be paid to species selection, their location relative to their flammability, minimising continuity of vegetation (horizontally and vertically), and ongoing maintenance to remove flammable fuels (leaf litter, twigs and debris).

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset Protection Zones

An APZ is a fuel-reduced area surrounding a building or structure. It is located between the building or structure and the bush fire hazard.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at the NSW RFS Website www.rfs.nsw.gov.au.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows for suppression of fire;
- an area from which backburning or hazard reduction can be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Bush fire fuels should be minimised within an APZ. This is so that the vegetation within the zone does not provide a path for the spread of fire to the building, either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

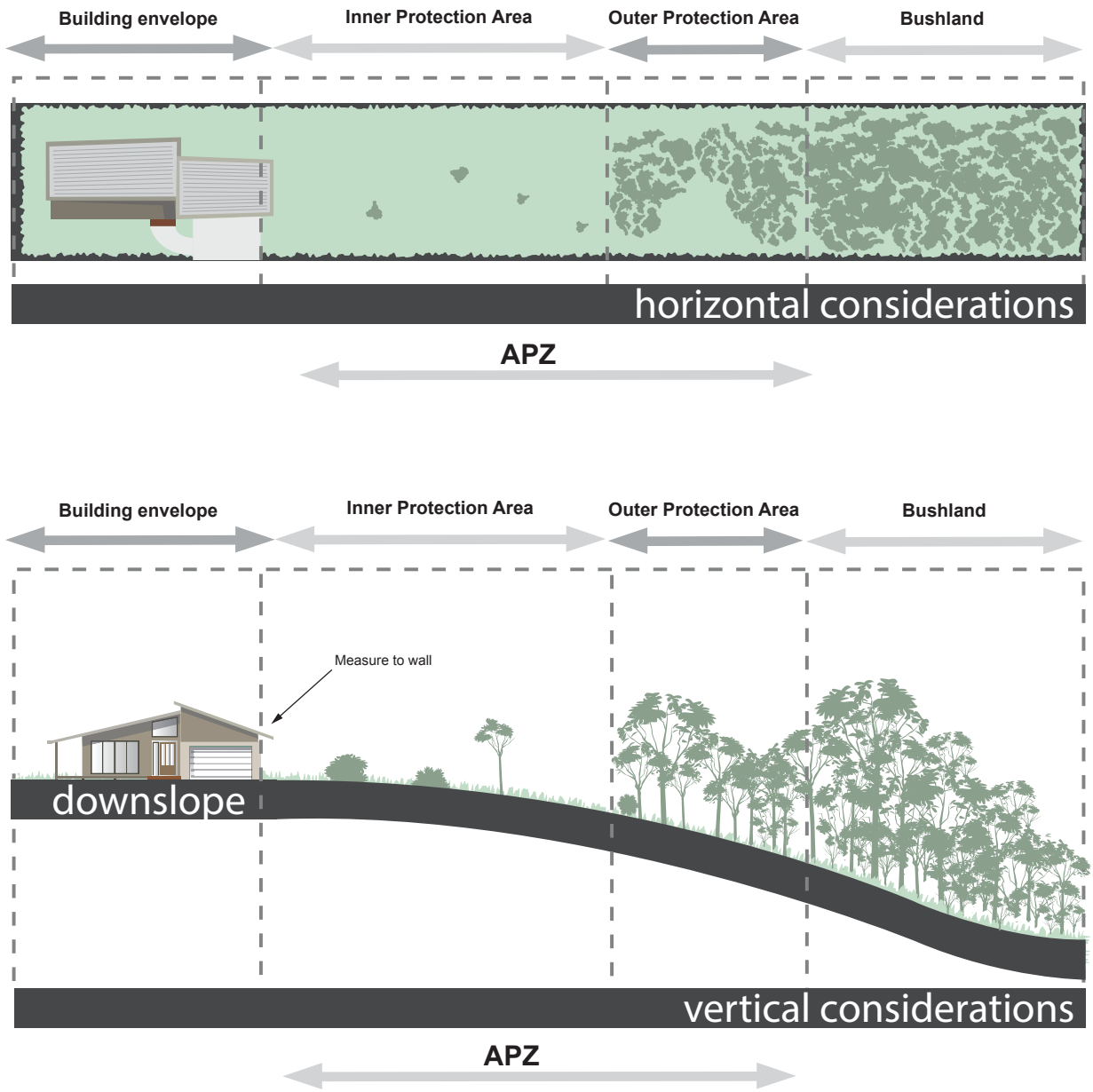
- direct flame contact on the building;
- damage to the building asset from intense radiant heat; and
- ember attack.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type and bush fire threat. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).

Figure A4.1

Typical Inner and Outer Protection Areas.



A4.1.1 Inner Protection Areas (IPAs)

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- tree canopy cover should be less than 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above the ground;
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

A4.1.2 Outer Protection Areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. It is an area where there is maintenance of the understorey and some separation in the canopy. The reduction of fuel in this area aims to decrease the intensity of an approaching fire and restricts the potential for fire spread from crowns; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

When establishing and maintaining an OPA the following requirements apply:

Trees

- tree canopy cover should be less than 30%; and
- canopies should be separated by 2 to 5m.

Shrubs

- shrubs should not form a continuous canopy; and
- shrubs should form no more than 20% of ground cover.

Grass

- grass should be kept mown to a height of less than 100mm; and
- leaf and other debris should be removed.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA as described above should be undertaken regularly, particularly in advance of the bush fire season.